

# Attachment D

## Evaluation of Trail Alternatives on Anemone Hill

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### ANEMONE HILL ALTERNATIVES

- Alternative C-1: Initial Trail Concept
- Alternative C-2: Main Loop (Shared Use)
- Alternative C-3: Main Loop System with Hiker Connections
- Alternative A-1: CCG Recommended Alternative

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Alternative	Ecological/Cultural/Agricultural Resources	Visitor Experience	Recreational Conflict	Trail Sustainability	Estimated Costs
<div>C-1</div> <div>Initial Trail Concept</div> <div>6.6 miles</div>	<p><b>Benefits:</b></p> <ul style="list-style-type: none"><li>• Users more likely to stay on trail</li><li>• Allows undesignated trail restoration success</li></ul> <p><b>Impacts:</b></p> <ul style="list-style-type: none"><li>• Impacts, or is in close proximity to numerous rare plant occurrences in the area.</li><li>• Switchbacks up from Sunshine Rd at the west end may require wetlands permitting.</li><li>• The stacked switchbacks would bisect a block of high quality forest vegetation.</li><li>• The connection from Boulder Creek Path is on a very steep slope. The decomposed granite soils make erosion problematic.</li></ul> <p>When compared to the WTSA Final Plan for the Anemone area, this option would:</p> <ul style="list-style-type: none"><li>• increase overall trail density in the Anemone area by 29%;</li><li>• increase trail density in black bear Highly Suitable Habitat in the Anemone area by 26% (Tables 1, 2);</li><li>• reduce acreage of Abert’s squirrel Highly Suitable Habitat in the Anemone area by 27% (Tables 1, 3);</li><li>• increase habitat fragmentation in the Anemone area—creating 5 smaller habitat blocks instead of 3 larger ones (See map entitled: “Anemone Area Fragmentation Analysis).</li></ul> <p><b>Specific impacts by section:</b></p> <ul style="list-style-type: none"><li>• Impacts from this option are similar to “C-1: Main Loop with Hiker Connections” except that the impacts from trail sections 15, 16a, and 22 are removed from the discussion because</li></ul>	<p><b>Benefits:</b></p> <ul style="list-style-type: none"><li>• Provides a new designated trail system in the Anemone Area.</li><li>• This option provides the greatest variety of lengths for hikers to choose from. The length for mountain bikes is also long enough to provide a quality experience.</li><li>• Incorporates existing user patterns in the area, as evident by social trails, to the greatest extent.</li><li>• A flow for the bike experience can be designed into the trail.</li><li>• Steep terrain creates a challenging biking and hiking experience.</li><li>• Provides an experience through the varied terrain of forests, open grasslands meadows and rock outcrops.</li><li>• Provides a new mountain bike experience close to Boulder, eliminates the need for some to drive to a mountain biking opportunity.</li><li>• Provides bike trail connections from Boulder Canyon bike path, Settler’s Park and Centennial Trailheads.</li></ul> <p><b>Impacts:</b></p> <ul style="list-style-type: none"><li>• For cyclists who like trails designed specifically for mountain biking this might not be a preferred trail. Some trail features that enhance the biking experience will not be used as they may conflict with managing the trail for multiple uses (technical rocky sections,</li></ul>	<p><b>Benefits:</b></p> <ul style="list-style-type: none"><li>• Trail alignment and design features could be used to mitigate or reduce some potential for recreational conflicts.</li><li>• The two interior trail sections are for pedestrians and equestrians providing non multi-use opportunities.</li><li>• Pedestrian and equestrian trail sections provide alternative trail loop options for shorter or varied trail experiences.</li><li>• Some bicyclists will ride bikes to the trail thereby reducing some need for visitors to drive to trailhead, reducing parking issues and neighborhood conflicts.</li></ul> <p><b>Impacts:</b></p> <ul style="list-style-type: none"><li>• Multiple-use trail sections are likely to lead to some conflicts associated with speed differential and passing/yielding conflicts.</li><li>• Steep trails, higher bike speeds and high visitation creates potential for dangerous conditions and negative visitor interactions.</li><li>• The multi-use trail section along Sunshine Drive will be more prone to conflicts and passing/yielding issues due to incorporating some of the existing narrow undesignated trail into this section of trail. Trail alignment is constrained by road and ditch.</li><li>• The steep trail section with switchbacks connecting the Anemone Ridge to the Sunshine Trail sections will be prone to conflicts and yielding/passing issues.</li><li>• Potential for illegal use of trails not designated for mountain biking at many intersections in the Red Rocks and Anemone area.</li><li>• Private property owners west of the loop may encounter an increase in</li></ul>	<ul style="list-style-type: none"><li>• Steep cross-slope on the north side of Anemone would require the bench to be approximately 3-4 ft wide, with a narrow active tread. This would facilitate safe passing and yielding.</li><li>• Multiple structures would be needed to increase trail sustainability to minimize long-term maintenance costs.</li><li>• Segment 40, see attachment C, would not be considered sustainable, but would improve the condition of this important connection with the use of steps and other structures.</li><li>• Improvements would be needed to the trail along Sunshine Road to improve sustainability.</li><li>• The switchbacks of Segment 32 would need to be sustainable for mountain bikes which are usually more intensive and costly than creating sustainable switchbacks for hiking/equestrians.</li><li>• Refer to Attachment C for Contractor thoughts about sustainability.</li></ul>	<p><b>Estimates by Design Concepts and Contour Logic</b></p> <p><b>Shared Use Loop: \$203,928</b></p> <p><b>Hiking Only Trails: \$88,093</b></p> <p><b>Boulder Creek Path Connection: \$28,824</b></p> <p><b>Total: \$320,845</b></p>

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Alternative	Ecological/Cultural/Agricultural Resources	Visitor Experience	Recreational Conflict	Trail Sustainability	Estimated Costs
	<p>they were not considered as trail options. See “Trail Segments” Map for identification of trail sections.</p> <p>This alignment:</p> <ul style="list-style-type: none"><li>• follows well-used ungulate trails (Section [“s”] 27, 13, 50, 22) with abundant deer beds (s32, 13, 50, 22);</li><li>• encroaches into the back-country habitat block (s25);</li><li>• crosses 6 additional well-vegetated drainages containing black bear Highly Suitable Habitat (s27, 25, 23, 50-52);</li><li>• increases habitat fragmentation (s32, 23, 27, 14, 17, 50-52, 12, 19, 20);</li><li>• increases habitat disturbance due to probability of placing trail through rock bands or on steep side slopes (s27, 32, 13, 50-52, 12, 19, 20);</li><li>• bisects mature forest where Cooper’s hawk adult, fledglings, and nest were located (s23, 25, 32) as well as where forest-interior bird species were present (s23, 25, 32);</li><li>• increases chance of sedimentation where loose soils are present (s23, 32);</li><li>• increases chance of cross-cutting switchbacks on very steep sections which may lead to trail sustainability issues (s23, 17, 50-52);</li><li>• fragments Abert’s squirrel Highly Suitable Habitat in multiple locations (s17, 14, 13);</li><li>• parallels drainage with high-quality habitat with riparian vegetation (s16b);</li><li>• crosses burned forest (s14, 13), which is rare habitat on OSMP and supports unique bird communities; and</li><li>• crosses a hillside with southern exposure and extensive rock outcroppings, which is preferred habitat for rattlesnakes and lizards</li></ul>	<p>obstacles, etc.).</p> <ul style="list-style-type: none"><li>• The first portion of trail off of Boulder Canyon would require the use of many steps to get out of the canyon. Cyclists would need to carry their bikes up this portion of the trail.</li><li>• Trail alignment crosses or comes in contact with multiple undesigned trails creating the potential for increased off-designated trail use.</li></ul> <p>Northern most hiking/equestrian trail crosses multiple drainages. This could result is multiple seasonal closures due to black bear activity.</p>	<p>trespassing by cyclists accessing Fourmile Canyon and biking opportunities to the west.</p> <ul style="list-style-type: none"><li>• Settler's Park and Centennial trailheads are very popular and busy. Increased use in this area could lead to greater parking difficulty in the area. Some may chose to park in the neighborhood increasing conflicts in neighboring areas.</li><li>• Adding a designated trail system in the Anemone Hill area is likely to increase visitation. Adding mountain biking would add to the visitation, regional use, conflict, and degrade experience for non-biking visitors and may result in some visitor displacement.</li></ul>		

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Alternative	Ecological/Cultural/Agricultural Resources	Visitor Experience	Recreational Conflict	Trail Sustainability	Estimated Costs
	(s12).				

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Alternative	Ecological/Cultural/Agricultural Resources	Visitor Experience	Recreational Conflict	Trail Sustainability	Estimated Costs
<div>C-2</div> <div>Main Loop (Shared Use)</div> <div>5.8 miles</div>	<p><b>Benefits:</b></p> <ul style="list-style-type: none"><li>• Users more likely to stay on trail</li><li>• Allows undesignated trail restoration success</li></ul> <p><b>Impacts:</b></p> <ul style="list-style-type: none"><li>• Impacts, or is in close proximity to numerous rare plant occurrences in the area.</li><li>• Switchbacks up from Sunshine Rd at the west end may require wetlands permitting.</li><li>• The connection from Boulder Creek Path is on a very steep slope. The decomposed granite soils make erosion problematic.</li></ul> <p>When compared to the WTSA Final Plan’s for the Anemone area, this option would:</p> <ul style="list-style-type: none"><li>• increase overall trail density in the Anemone area by 23%;</li><li>• increase trail density in black bear Highly Suitable Habitat in the Anemone area by 20% (Tables 1, 2);</li><li>• reduce acreage of Abert’s squirrel Highly Suitable Habitat in the Anemone area by 46% (Tables 1, 3).</li><li>• increase habitat fragmentation in the Anemone area—creating four smaller habitat blocks instead of 3 larger ones (See map entitled: “Anemone Area Fragmentation Analysis”).</li></ul> <p><b>Specific impacts by section:</b></p> <ul style="list-style-type: none"><li>• Impacts from this option are similar to C-1: “Main Loop with Hiker Connections” except that the impacts from trail sections 32, 25, and 27 are removed from the discussion because they were not considered as trail</li></ul>	<p><b>Benefits:</b></p> <ul style="list-style-type: none"><li>• Provides a new designated trail system in the Anemone Area.</li><li>• The multiple-use section is long enough to provide a quality experience. Provides one hiker only trail section that creates to two length options for hikers.</li><li>• Incorporates some of the existing user patterns in the area.</li><li>• A flow for the bike experience can be designed into the trail.</li><li>• Steep terrain creates a challenging biking and hiking experience.</li><li>• Provides an experience through the varied terrain of forests, open grasslands meadows and rock outcrops.</li><li>• Provides a new mountain bike experience close to Boulder, eliminates the need for some to drive to a mountain biking opportunity.</li><li>• Provides bike trail connections from Boulder Canyon bike path, Settler’s Park and Centennial Trailheads.</li></ul> <p><b>Impacts:</b></p> <ul style="list-style-type: none"><li>• For cyclists who like trails designed specifically for mountain biking this might not be a preferred trail. Some trail features that enhance the biking experience will not be used as they may conflict with managing the trail for multiple uses (technical rocky sections, obstacles, etc.).</li><li>• The first portion of trail off of Boulder Canyon would require the</li></ul>	<p><b>Benefits:</b></p> <ul style="list-style-type: none"><li>• Trail alignment and design features could be used to mitigate or reduce some potential for recreational conflicts.</li><li>• The Sunshine Drive trail section and two other trail sections are for pedestrians and equestrians. This will provide those users a mountain bike free opportunity.</li><li>• Some bicyclists will ride bikes to the trail thereby reducing some need for visitors to drive to trailhead, reducing parking issues and neighborhood conflicts.</li></ul> <p><b>Impacts:</b></p> <ul style="list-style-type: none"><li>• Multiple-use trails are more likely to lead to some conflicts associated with speed differential and passing/yielding conflicts.</li><li>• Steep trails, higher bike speeds and high visitation creates potential for dangerous conditions and negative visitor interactions.</li><li>• Loss of opportunity for shorter trail loops along Sunshine Drive for non-cyclists. May result in higher use on multi-use trails with greater conflict potential or lead to use or development of undesignated trails.</li><li>• The multi-use trail section along Sunshine Drive will be more prone to conflicts and passing/yielding issues due to incorporating some of the existing narrow undesignated trail into this section of trail. Trail alignment is constrained by road and ditch, possibly making visitors feel like they can’t pass safely.</li><li>• Potential for illegal use of trails not designated for mountain biking at many intersections in the Red Rocks and Anemone area.</li></ul>	<ul style="list-style-type: none"><li>• Multiple structures would be needed to increase trail sustainability to minimize long-term maintenance costs.</li><li>• Segment 40, see attachment C, would not be considered sustainable, but would improve the condition of this important connection with the use of steps and other structures.</li><li>• Improvements would be needed to the trail along Sunshine Road to improve sustainability.</li><li>• Refer to Attachment C for Contractor thoughts about sustainability.</li></ul>	<p><b>Estimates by Design Concepts and Contour Logic</b></p> <p><b>Shared Use Loop: \$216,944</b></p> <p><b>Hiking Only Trails: \$34,976</b></p> <p><b>Boulder Creek Path Connection: \$28,824</b></p> <p><b>Total: \$280,745</b></p>

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Alternative	Ecological/Cultural/Agricultural Resources	Visitor Experience	Recreational Conflict	Trail Sustainability	Estimated Costs
	<p>options. See “Trail Segments” Map for identification of trail sections.</p> <p>This alignment:</p> <ul style="list-style-type: none"><li>• follows well-used ungulate trails (Section [“s”] 27, 13, 50, 22) with abundant deer beds (s13, 50, 22);</li><li>• encroaches into the back-country habitat block ( s16a, 15.1, 15.2);</li><li>• crosses 5 additional well-vegetated drainages containing black bear Highly Suitable Habitat (s23, 15.1, 16a, 50-52, 22);</li><li>• increases habitat fragmentation (s23, 16a, 15.1, 15.2, 14, 17, 50-52, 12, 22, 19, 20);</li><li>• increases habitat disturbance due to probability of placing trail through rock bands or on steep side slopes (s27, 13, 50-52, 12, 22, 19, 20);</li><li>• bisects mature forest where Cooper’s hawk adult, fledglings, and nest were located (s23) as well as where forest-interior bird species were present (s23, 16a);</li><li>• increases chance of sedimentation where loose soils are present (s23);</li><li>• increases chance of cross-cutting switchbacks on very steep sections which may lead to trail sustainability issues (s23, 17, 16a, 50-52);</li><li>• fragments Abert’s squirrel Highly Suitable Habitat in multiple locations (s17, 16a, 15.1, 15.2, 14, 13);</li><li>• intersects or is parallel to un-restorable undesignated trail (Pipeline Trail) which leads into backcountry habitat block (s16a, 15.1, 15.2), this may lead to issues with trespassing on private property and could increase probability of parallel trails forming (s14) and / or crosscutting switchbacks (s15);</li></ul>	<p>use of many steps to get out of the canyon. Cyclists would need to carry their bikes up this portion of the trail.</p> <ul style="list-style-type: none"><li>• Trail alignment crosses or comes in contact with multiple undesignated trails creating the potential for increased off-designated trail use.</li></ul>	<ul style="list-style-type: none"><li>• Private property owners west of the loop may encounter an increase in trespassing by cyclists accessing Fourmile Canyon and biking opportunities to the west.</li><li>• Settler's Park and Centennial trailheads are very popular and busy. Increased use in this area could lead to greater parking difficulty in the area. Some may chose to park in the neighborhood increasing conflicts in neighboring areas.</li><li>• Adding a designated trail system in the Anemone Hill area is likely to increase visitation. Adding mountain biking would add to the visitation, regional use, conflict, and degrade experience for non-biking visitors and may result in some visitor displacement.</li></ul>		

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Alternative	Ecological/Cultural/Agricultural Resources	Visitor Experience	Recreational Conflict	Trail Sustainability	Estimated Costs
	<ul style="list-style-type: none"><li>parallels drainage with high-quality habitat with riparian vegetation (s16a);</li><li>crosses burned forest (s14, 13, 22), which is rare habitat on OSMP and supports unique bird communities (s22); and</li><li>crosses a hillside with southern exposure and extensive rock outcroppings, which is preferred habitat for rattlesnakes and lizards (s12).</li></ul>				

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Alternative	Ecological/Cultural/Agricultural Resources	Visitor Experience	Recreational Conflict	Trail Sustainability	Estimated Costs
<div>C-3</div> <div>Main Loop System with Hiker Connections</div> <div>7.3 miles</div>	<p><b>Benefits:</b></p> <ul style="list-style-type: none"><li>• Users more likely to stay on trail</li><li>• Allows undesignated trail restoration success</li></ul> <p><b>Impacts:</b></p> <ul style="list-style-type: none"><li>• The amount of disturbance on the north facing slope of the area is higher for this option than for other options. Much of the Anemone area is disturbed with a high cover of non-native species. The upper portions of the north slope are relatively undisturbed and have large patches of high quality vegetation.</li><li>• Impacts, or is in close proximity to numerous rare plant occurrences in the area. Trail alignment can likely be tweaked to lessen.</li><li>• The multiple stacked trails on the north slope could lead to short cutting and the establishment of new social trails.</li><li>• The connection from Boulder Creek Path is on a very steep slope. The decomposed granite soils make erosion problematic.</li><li>• Switchbacks up from Sunshine Rd at the west end may require wetlands permitting.</li></ul> <p>When compared to the WTSA Final Plan for the Anemone area, this option would:</p> <ul style="list-style-type: none"><li>• increase overall trail density in the Anemone area by 39%;</li><li>• increase trail density in black bear Highly Suitable Habitat in the Anemone area by 47% (Tables 1, 2)</li><li>• reduce acreage of Abert’s Squirrel Highly Suitable Habitat in the Anemone area by 46% (Tables 1, 3).</li><li>• increase habitat fragmentation in the</li></ul>	<p><b>Benefits:</b></p> <ul style="list-style-type: none"><li>• Provides a new designated trail system in the Anemone Area.</li><li>• This option provides the greatest variety of lengths for hikers to choose from. The length for mountain bikes is also long enough to provide a quality experience.</li><li>• Incorporates existing user patterns in the area, as evident by social trails, to the greatest extent.</li><li>• A flow for the bike experience can be designed into the trail.</li><li>• Steep terrain creates a challenging biking and hiking experience.</li><li>• Provides an experience through the varied terrain of forests, open grasslands meadows and rock outcrops.</li><li>• Provides a new mountain bike experience close to Boulder, eliminates the need for some to drive to a mountain biking opportunity.</li><li>• Provides bike trail connections from Boulder Canyon bike path, Settler’s Park and Centennial Trailheads.</li></ul> <p><b>Impacts:</b></p> <ul style="list-style-type: none"><li>• For cyclists who like trails designed specifically for mountain biking this might not be a preferred trail. Some trail features that enhance the biking experience will not be used as they may conflict with managing the trail for multiple uses (technical rocky sections,</li></ul>	<p><b>Benefits:</b></p> <ul style="list-style-type: none"><li>• Trail alignment and design features could be used to mitigate or reduce some potential for recreational conflicts.</li><li>• The Sunshine Drive trail section and two other trail sections are for pedestrians and equestrians. This will provide those users a mountain bike free opportunity.</li><li>• Some bicyclists will ride bikes to the trail thereby reducing some need for visitors to drive to trailhead, reducing parking issues and neighborhood conflicts.</li></ul> <p><b>Impacts:</b></p> <ul style="list-style-type: none"><li>• Multiple-use trail sections are likely to lead to some conflicts associated with speed differential and passing/yielding conflicts. Most of the Anemone Trail sections are multi-use.</li><li>• Steep trails, higher bike speeds and high visitation creates potential for dangerous conditions and negative visitor interactions.</li><li>• Potential for illegal use of trails not designated for mountain biking at many intersections in the Red Rocks and Anemone area.</li><li>• Private property owners west of the loop may encounter an increase in trespassing by cyclists accessing Fourmile Canyon and biking opportunities to the west.</li><li>• Settler's Park and Centennial trailheads are very popular and busy. Increased use in this area could lead to greater parking difficulty in the area. Some may chose to park in the neighborhood increasing conflicts in neighboring areas.</li><li>• Adding a designated trail system in the Anemone Hill area is likely to increase visitation. Adding mountain biking</li></ul>	<ul style="list-style-type: none"><li>• Steep cross-slope on the north side of Anemone would require the bench to be approximately 3-4 ft wide, with a narrow active tread. This would facilitate safe passing and yielding.</li><li>• Multiple structures would be needed to increase trail sustainability to minimize long-term maintenance costs.</li><li>• Segment 40, see attachment C, would not be considered sustainable, but would improve the condition of this important connection with the use of steps and other structures.</li><li>• Improvements would be needed to the trail along Sunshine Road to improve sustainability.</li><li>• Refer to Attachment C for Contractor thoughts about sustainability.</li></ul>	<p><b>Estimates by Design Concepts and Contour Logic</b></p> <p><b>Shared Use Loop: \$216,904</b></p> <p><b>Hiking Only Trails: \$91,009</b></p> <p><b>Boulder Creek Path Connection: \$28,824</b></p> <p><b>Total: \$ 336,737</b></p>



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Alternative	Ecological/Cultural/Agricultural Resources	Visitor Experience	Recreational Conflict	Trail Sustainability	Estimated Costs
	<p>Anemone area—creating six smaller habitat blocks instead of 3 larger ones (See map entitled: “Anemone Area Fragmentation Analysis”).</p> <p><b>Specific impacts by section (See “Trail Segments” Map for identification of trail sections):</b></p> <p>This alignment:</p> <ul style="list-style-type: none"><li>• follows well-used ungulate trails (Section [“s”] 27, 13, 50, 22) with abundant deer beds (s32,13, 50, 22);</li><li>• encroaches into the back country habitat block (s25, 16a, 15.1, 15.2);</li><li>• crosses 9 additional well-vegetated drainages containing black bear Highly Suitable Habitat (s27, 25, 23, 15.1, 16a, 50-52, 22);</li><li>• increases habitat fragmentation (s32, 23, 27, 16a, 15.1, 15.2, 14, 17, 50-52, 12, 22, 19, 20);</li><li>• increases habitat disturbance due to probability of placing trail through rock bands or on steep side slopes (s27, 32, 13, 50-52, 12, 22, 19, 20);</li><li>• bisects mature forest where Cooper’s hawk adult, fledglings, and nest were located (s23, 25, 32) as well as where forest-interior bird species were present (s23, 25, 32, 16a);</li><li>• increases chance of sedimentation where loose soils are present (s23, 32);</li><li>• increases chance of cross-cutting switchbacks on very steep sections which may lead to trail sustainability issues (s23, 17, 16a, 50-52);</li><li>• fragments Abert’s squirrel Highly Suitable Habitat in multiple locations (s17, 16a, 15.1, 15.2, 14, 13);</li><li>• intersects or is parallel to un-restorable undesignated trail (Pipeline Trail) which</li></ul>	<p>obstacles, etc.).</p> <ul style="list-style-type: none"><li>• The first portion of trail off of Boulder Canyon would require the use of many steps to get out of the canyon. Cyclists would need to carry their bikes up this portion of the trail.</li><li>• Trail alignment crosses or comes in contact with multiple undesignated trails creating the potential for increased off-designated trail use.</li><li>• Northern most multi-use trail crosses multiple drainages. This could result is multiple seasonal closures due to black bear activity.</li></ul>	<p>would add to the visitation, regional use, conflict, and degrade experience for non-biking visitors and may result in some visitor displacement.</p>		

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Alternative	Ecological/Cultural/Agricultural Resources	Visitor Experience	Recreational Conflict	Trail Sustainability	Estimated Costs
	<p>leads into backcountry habitat block (s16a, 15.1, 15.2), this may lead to issues with trespassing on private property and could increase probability of parallel trails forming (s14) and / or crosscutting switchbacks (s15);</p> <ul style="list-style-type: none"><li>• parallels drainage with high-quality habitat with riparian vegetation and high bird abundance (s16a);</li><li>• crosses burned forest (s14, 13, 22), which is rare habitat on OSMP and supports unique bird communities; and</li><li>• crosses a hillside with southern exposure and extensive rock outcroppings, which is preferred habitat for rattlesnakes and lizards (s12).</li></ul>				

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Alternative	Ecological/Cultural/Agricultural Resources	Visitor Experience	Recreational Conflict	Trail Sustainability	Estimated Costs
<div>A-1</div> <div>CCG Recommended Alternative</div> <div>3.7 miles</div>	<p><b>Benefits:</b></p> <ul style="list-style-type: none"><li>Minimizes habitat fragmentation in the area.</li><li>Would leave most of the north facing slope above Sunshine Canyon unfragmented and keeps trails out of some of the highest quality vegetation in the area.</li><li>Reduces trail density in Anemone area in black bear Highly Suitable Habitat from current conditions (from 99 to 69 ft/are)</li><li>Increase acreage in Abert’s squirrel highly suitable habitat in Anemone area from current conditions (from 52 acres to 91 acres, Table 2)</li></ul> <p><b>Impacts:</b></p> <ul style="list-style-type: none"><li>Unsustainable portions of trail could lead to further erosion, trail widening and resource damage.</li><li>Separation of trails could lead to some cross-cutting and social trails.</li><li>bisects Abert’s squirrel Highly Suitable Habitat;</li><li>follows well-used ungulate trails with abundant deer beds in some sections;</li><li>bisects mature forest where Cooper’s hawk adult, fledglings, and nest were located;</li><li>parallels drainage with high-quality habitat with riparian vegetation;</li><li>crosses burned forest, which is rare habitat on OSMP and supports unique bird communities;</li><li>crosses a hillside with southern exposure and extensive rock outcroppings, which is preferred habitat for rattlesnakes and lizards; and</li><li>increases chance of sedimentation where loose soils are present.</li></ul>	<p><b>Benefits:</b></p> <ul style="list-style-type: none"><li>Provides a new designated trail system in the Anemone Area.</li><li>The separate loops incorporate multiple undesignated trails and still deliver people to where they want to go, as evident by the undesignated trail system.</li><li>New trails would cross the pipe line undesignated trail only once, which leads to private property.</li><li>Uses a number of existing undesignated routes which serve desired key destinations and could minimize the development of new social trails.</li><li>Uses along the Sunshine Loop would be consistent with the uses allowed on the easement along the northwest side that leads to Wittemyer.</li><li>Approved by the CCG</li></ul> <p><b>Impacts:</b></p> <ul style="list-style-type: none"><li>The two loops are not connected and visitors may create new undesignated trails to connect them.</li><li>No designated connection to boulder creek path</li></ul>	<p><b>Benefits:</b></p> <ul style="list-style-type: none"><li>Hikers and Equestrians have been using this area historically with low levels of known conflict.</li><li>Trails are routed away from the private property boundary on the west side to discourage trespassing.</li><li>Discourages use of pipeline undesignated trail which also leads to private property</li></ul> <p><b>Impacts:</b></p> <ul style="list-style-type: none"><li>Does not provide a new mountain bike experience</li><li>Increases demand for parking due to the new designated trail system at the Centennial and Settler’s Park Trailheads. However, the increase is expected to be modest.</li></ul>	<ul style="list-style-type: none"><li>During the CCG process it was agreed that trail sustainability would be somewhat compromised in order to meet the community’s desire to be on the ridge along the north side of the Anemone Loop. The existing undesignated trail along the ridge will receive minor reroutes to improve sustainability but will generally continue to remain on the ridge. As the trail descends towards Red Rocks, OSMP will reroute that section and close the existing undesignated trail network.</li><li>Steep sections of the Sunshine Loop trail we be rerouted. It will also be located away from rare plant occurrences. The segment that parallels the road will receive maintenance.</li><li>New trail segments will be built in compliance with OSMP Trail Construction and Maintenance Guidelines.</li></ul>	<p><b>Estimate by OSMP and Contour Logic</b></p> <p><b>Sunshine Loop: \$47,000</b></p> <p><b>Anemone Loop: \$141,500</b></p> <p><b>Total: \$188,500</b></p>

## Attachment D

Table 1. A comparison among the trails developed by Design Concepts, Inc. for the Anemone area and the trails approved in the WTSA Final Plan. For more information, see Tables 2 and 3 and Map 5.

	<b>Change in Overall Trail Density*</b>	<b>Change in Trail Density in Black Bear HSH</b>	<b>Change in Acreage of Abert's HSH</b>	<b>Number of Habitat Blocks</b>
Main Loop System w/ Hiker Cxn ("C-1")	↑ 39%	↑ 48%	↓ 46%	6
ML (Shared Use) ["C-2"]	↑ 23%	↑ 20%	↓ 46%	4
Initial Trail Concept ("C-3")	↑ 29%	↑ 26%	↓ 27%	5

\*Change in overall trail density in the Anemone area from the WTSA Final Plan to those developed by Design Concepts, Inc.

Attachment D

**Table 2.** A comparison of trail density in black bear Highly Suitable Habitat among the original OSMP Inventory, WTSA Final Plan, and the three trail options provided by Design Concepts throughout the WTSA and in the Anemone area.

Black Bear													
WTSA - 10,669 Acres													
1280 Potential HSH Acreage = 12% of Total WTSA Acreage													
	Original Inventory (Existing Conditions)		Final Package		MLS w/Hiker Cnx			MLS (Shared Use)			Initial Trail Concept		
In Black Bear HSH	Trail Mileage In HSH	Density Within HSH (ft/acre)	Trail Mileage In HSH	Density Within HSH (ft/acre)	Trail Mileage In HSH	Density Within HSH (ft/acre)	% Increase Compared To Final Plan	Trail Mileage In HSH	Density Within HSH (ft/acre)	% Increase Compared To Final Plan	Trail Mileage In HSH	Density Within HSH (ft/acre)	% Increase Compared To Final Plan
All Trails (Including Design Concepts Alignments) & Roads*	23.94	98.75	17.85	73.63	18.45	76.11	3.4%	18.11	74.70	1.5%	18.19	75.03	1.9%
OSMP Designated Trails (Includes Design Concepts Alignments)	14.64	60.40	15.42	63.59	16.00	65.95	3.7%	15.65	64.55	1.5%	15.74	64.89	2.0%
Undesignated Trails	7.32	30.19	0.45	1.83	0.44	1.83	N/A	0.44	1.83	N/A	0.44	1.83	N/A
Anemone - 583 Acres													
93 Potential HSH Acreage = 16% of Total Anemone Acreage													
	Original Inventory (Existing Conditions)		Final Package		MLS w/Hiker Cnx			MLS (Shared Use)			Initial Trail Concept		
In Black Bear HSH	Trail Mileage In HSH	Density Within HSH (ft/acre)	Trail Mileage In HSH	Density Within HSH (ft/acre)	Trail Mileage In HSH	Density Within HSH (ft/acre)	% Increase Compared To Final Plan	Trail Mileage In HSH	Density Within HSH (ft/acre)	% Increase Compared To Final Plan	Trail Mileage In HSH	Density Within HSH (ft/acre)	% Increase Compared To Final Plan
All Trails (Including Design Concepts Alignments) & Roads*	2.86	162.37	2.32	131.72	2.90	164.65	25.0%	2.56	145.34	10.3%	2.64	149.88	13.8%
OSMP Designated Trails (Includes Design Concepts Alignments)	0.55	31.23	1.22	69.26	1.80	102.19	47.5%	1.46	82.89	19.7%	1.54	87.43	26.2%
Undesignated Trails	1.21	68.70	0.00	0.00	0.00	0.00	N/A	0.00	0.00	N/A	0.00	0.00	N/A

MLS = Main Loop System  
\*Includes OSMP and BOCO Managed Trails, Undes. Trails & Roads  
Note: Roads have 0.15 miles in HSH  
Note: BOCO Designated Trails have 0.95 miles in HSH

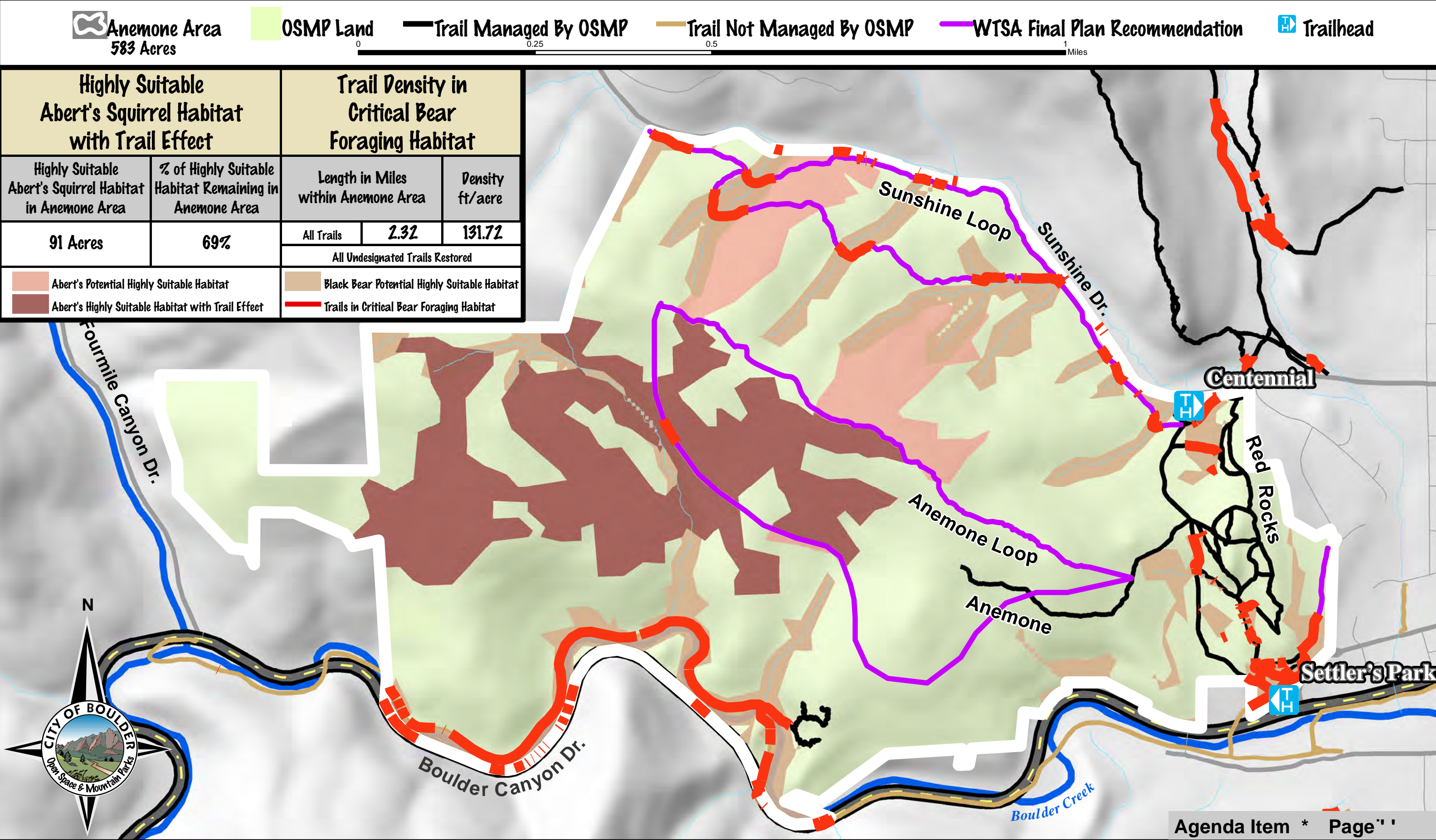
# Attachment D

**TABLE 3.** A comparison of the acreage of Abert’s squirrel Highly Suitable Habitat remaining in the original OSMP Inventory, WTSA Final Plan, and the three trail options provided by Design Concepts throughout the WTSA and in the Anemone area.

ABERT'S SQUIRREL						
WTSA - 10,669 Acres						
944 Potential HSH Acreage = 9% of WTSA Acreage						
Alternative	HSH Acres Remaining After Trail Effect	Percentage of HSH Acreage Remaining If Alternative Is Implemented	Change In HSH Acreage If Alternative Was Implemented	Percent Change In HSH Acreage If Alternative Was Implemented	Change In HSH Acreage If Alternative Was Implemented Instead of Final Package	Percent Change In HSH Acreage If Alternative Was Implemented Instead of Final Package
Inventory Report (Existing Conditions)	538	57%	N/A	N/A	N/A	N/A
Final Package	608	64%	70	13%	N/A	N/A
Main Loop System With Hiker Cnx	566	60%	28	5%	-42	-7%
Main Loop (Shared Use)	566	60%	28	5%	-42	-7%
Initial Trail Concept	583	62%	45	8%	-25	-4%
ANEMONE - 583 Acres						
132 Potential HSH Acreage = 23% of Total Anemone Acreage						
Alternative	HSH Acres Remaining After Trail Effect	Percentage of HSH Acreage Remaining If Alternative Is Implemented	Change In HSH Acreage If Alternative Was Implemented	Percent Change In HSH Acreage If Alternative Was Implemented	Change In HSH Acreage If Alternative Was Implemented Instead of Final Package	Percent Change In HSH Acreage If Alternative Was Implemented Instead of Final Package
Inventory Report (Existing Conditions)	52	39%	N/A	N/A	N/A	N/A
Final Package	91	69%	39	75%	N/A	N/A
Main Loop System With Hiker Cnx	49	37%	-3	-6%	-42	-46%
Main Loop (Shared Use)	49	37%	-3	-6%	-42	-46%
Initial Trail Concept	66	50%	14	27%	-25	-27%

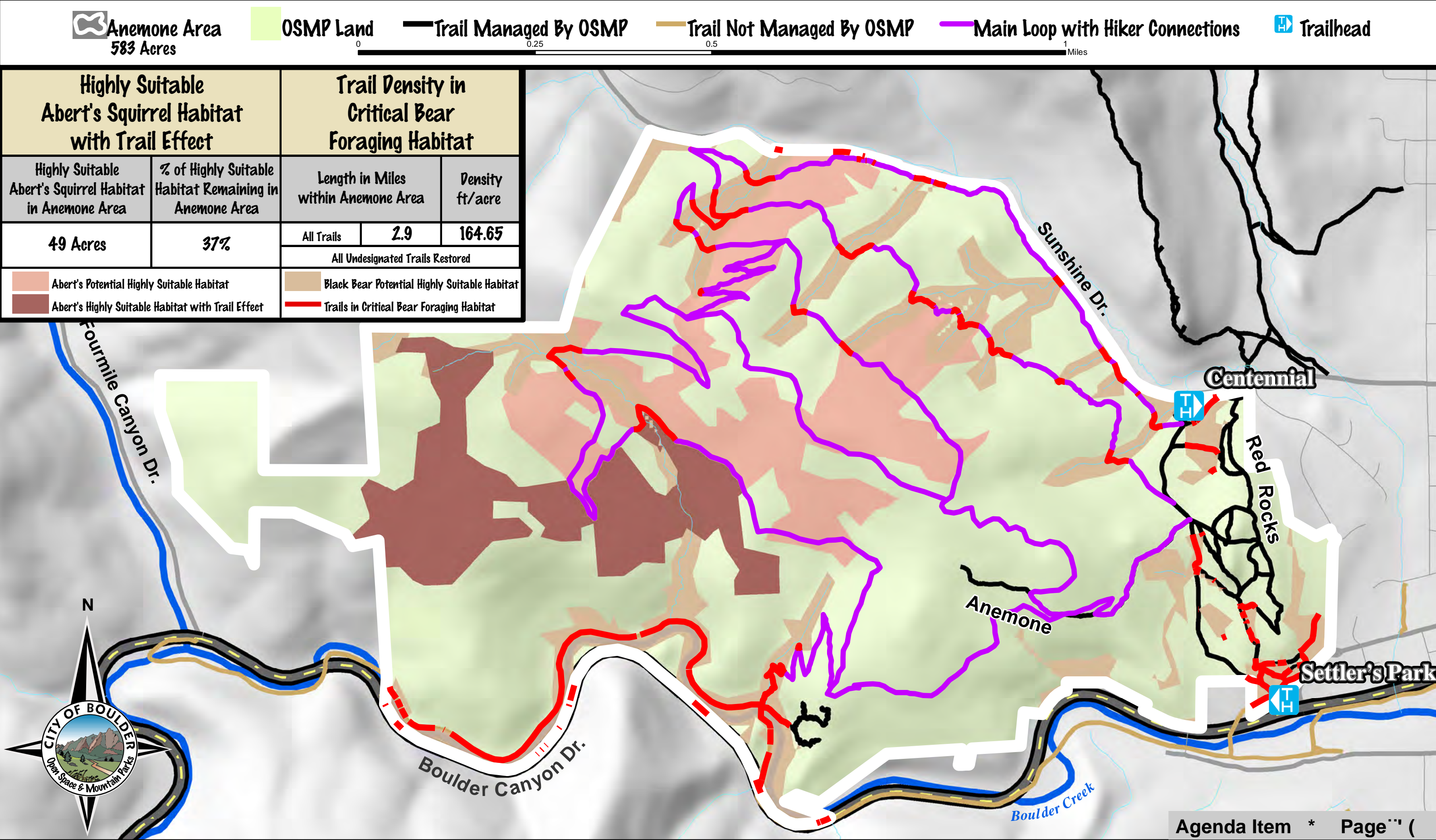


# Anemone Area - Abert's Squirrel and Black Bear Combined Habitat Suitability WTSA Final Plan Recommendation Analysis



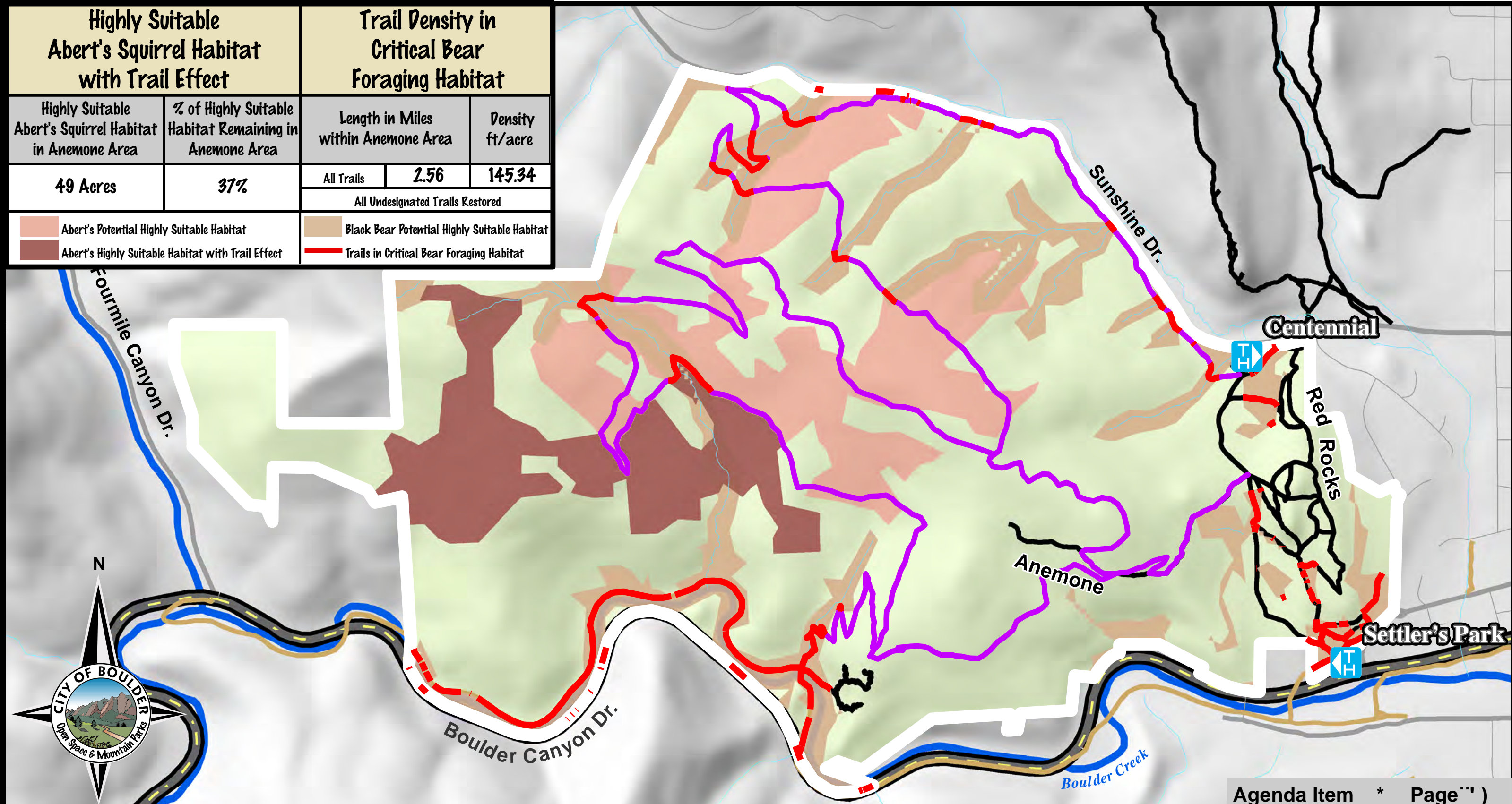


# Anemone Area - Abert's Squirrel and Black Bear Combined Habitat Suitability Main Loop System with Hiker Connections Analysis





**Map 6**  
**Attachment D**





# Anemone Area - Abert's Squirrel and Black Bear Combined Habitat Suitability Initial Trail Concept Analysis

Map 7  
Attachment D

 **Anemone Area**  
583 Acres

 **OSMP Land**

 **Trail Managed By OSMP**

 **Trail Not Managed By OSMP**





 **Initial Trail Concept**

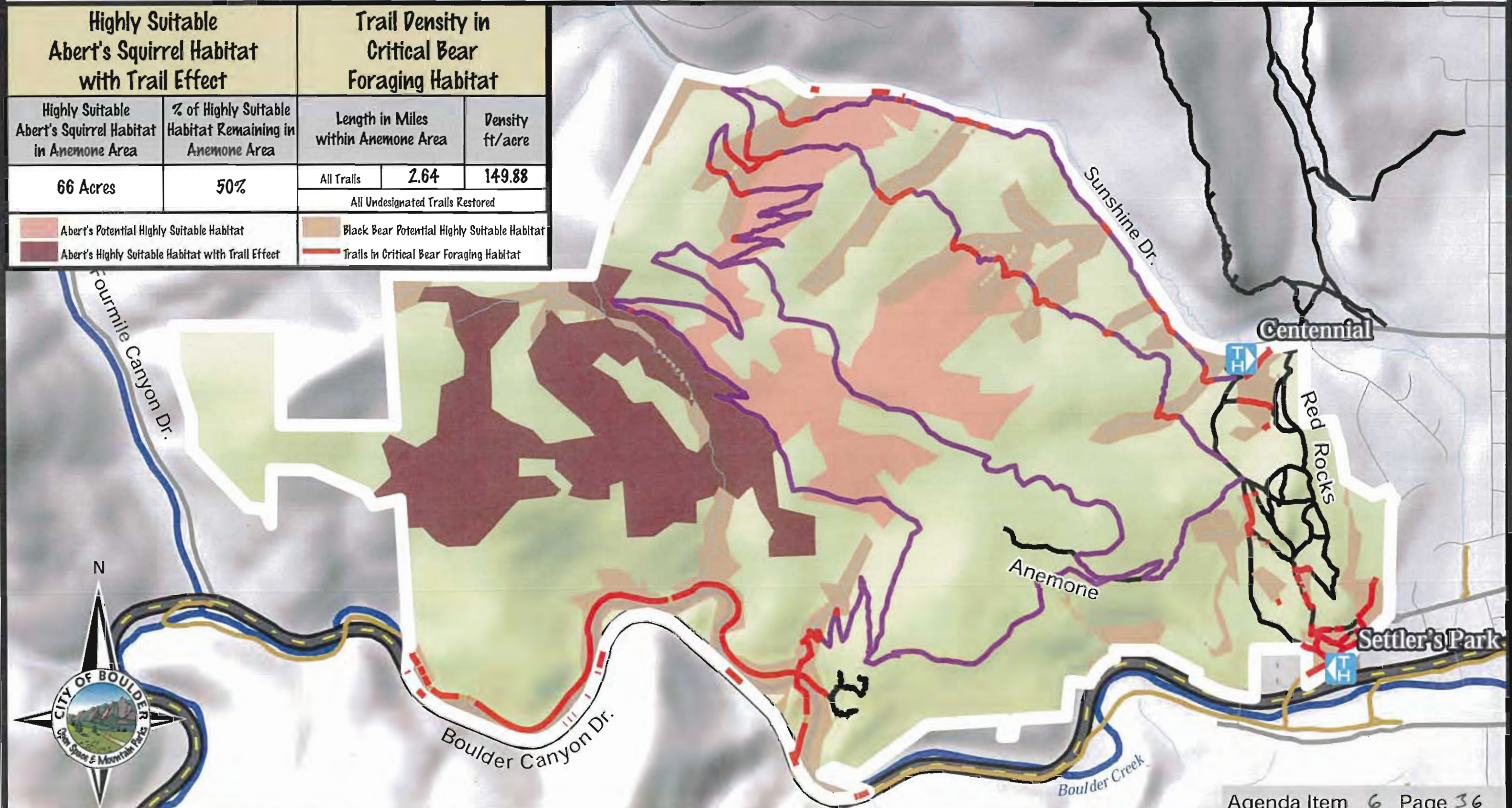
 **Trailhead**

0 0.25 0.5 1 Miles

## Highly Suitable Abert's Squirrel Habitat with Trail Effect

## Trail Density in Critical Bear Foraging Habitat

Highly Suitable Abert's Squirrel Habitat in Anemone Area	% of Highly Suitable Habitat Remaining in Anemone Area	Length in Miles within Anemone Area		Density ft/acre
66 Acres	50%	All Trails	2.64	149.88
All Undesignated Trails Restored				
 Abert's Potential Highly Suitable Habitat		 Black Bear Potential Highly Suitable Habitat		
 Abert's Highly Suitable Habitat with Trail Effect		 Trails in Critical Bear Foraging Habitat		





# Anemone Area Fragmentation Analysis



OSMP Land



Trailheads

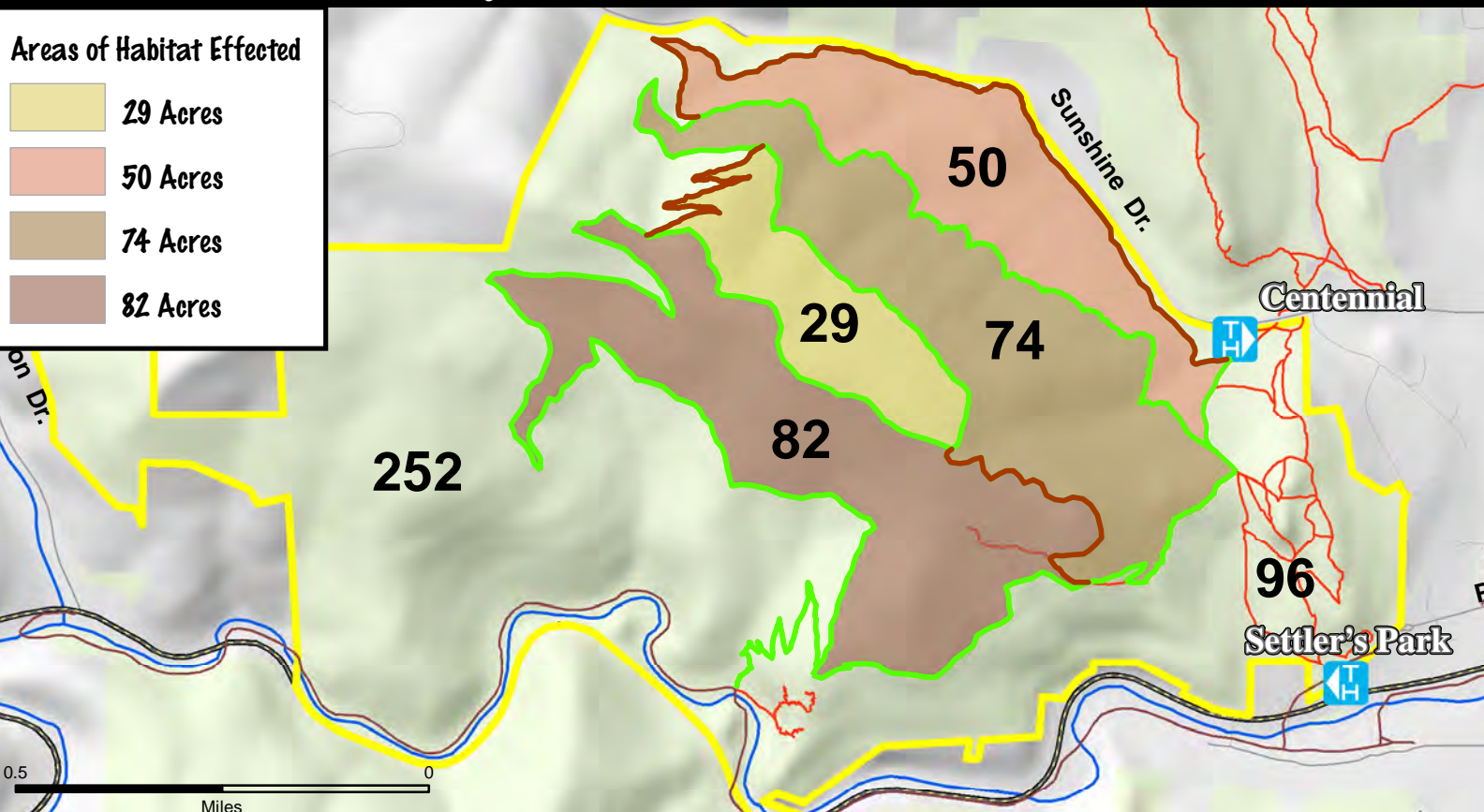
Trails Managed By OSMP

Shared Trail

Hiking / Equestrian Trail

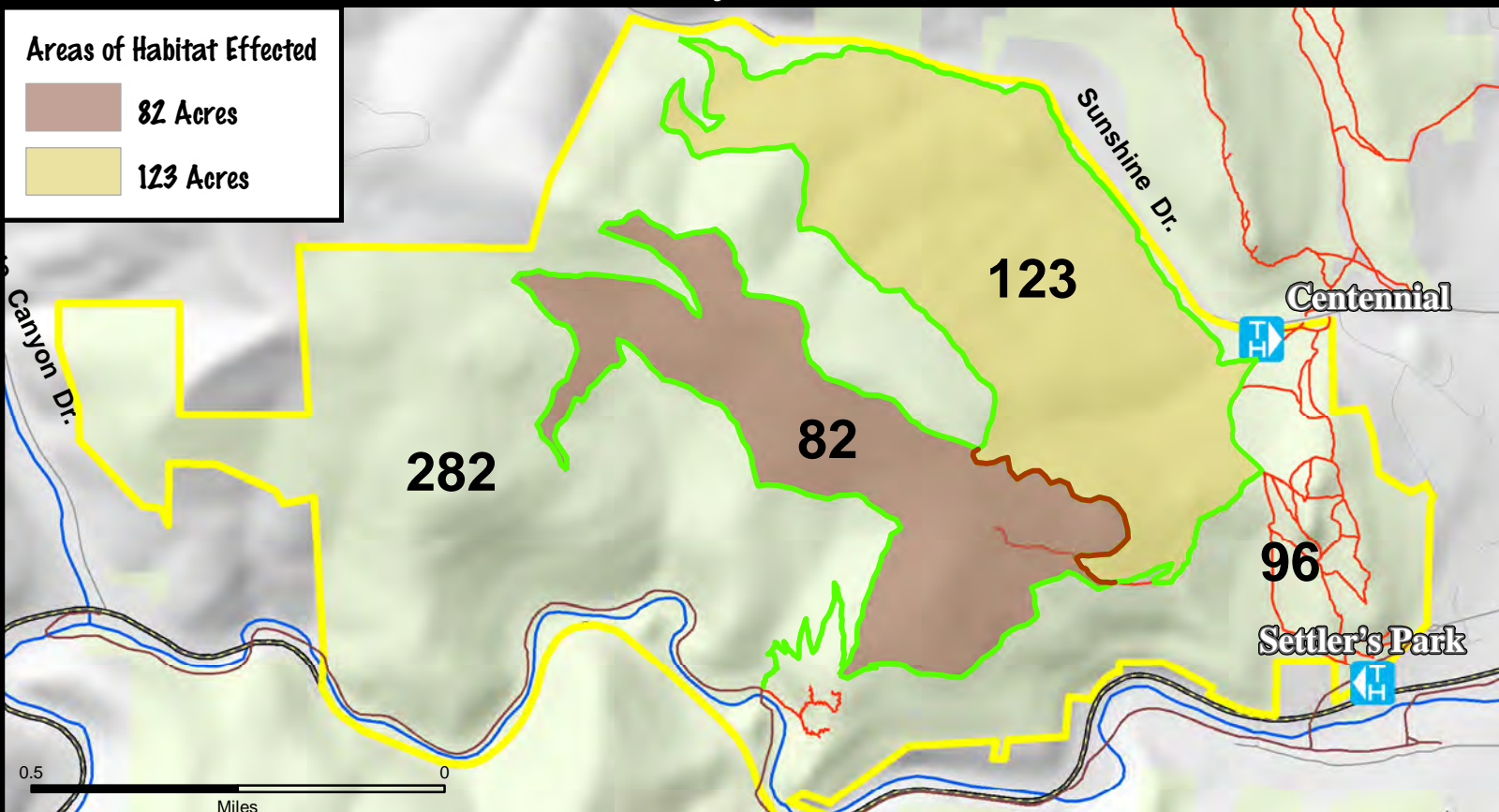
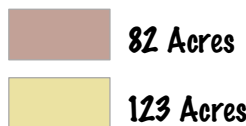
## Main Loop System with Hiker Connections

Areas of Habitat Effect



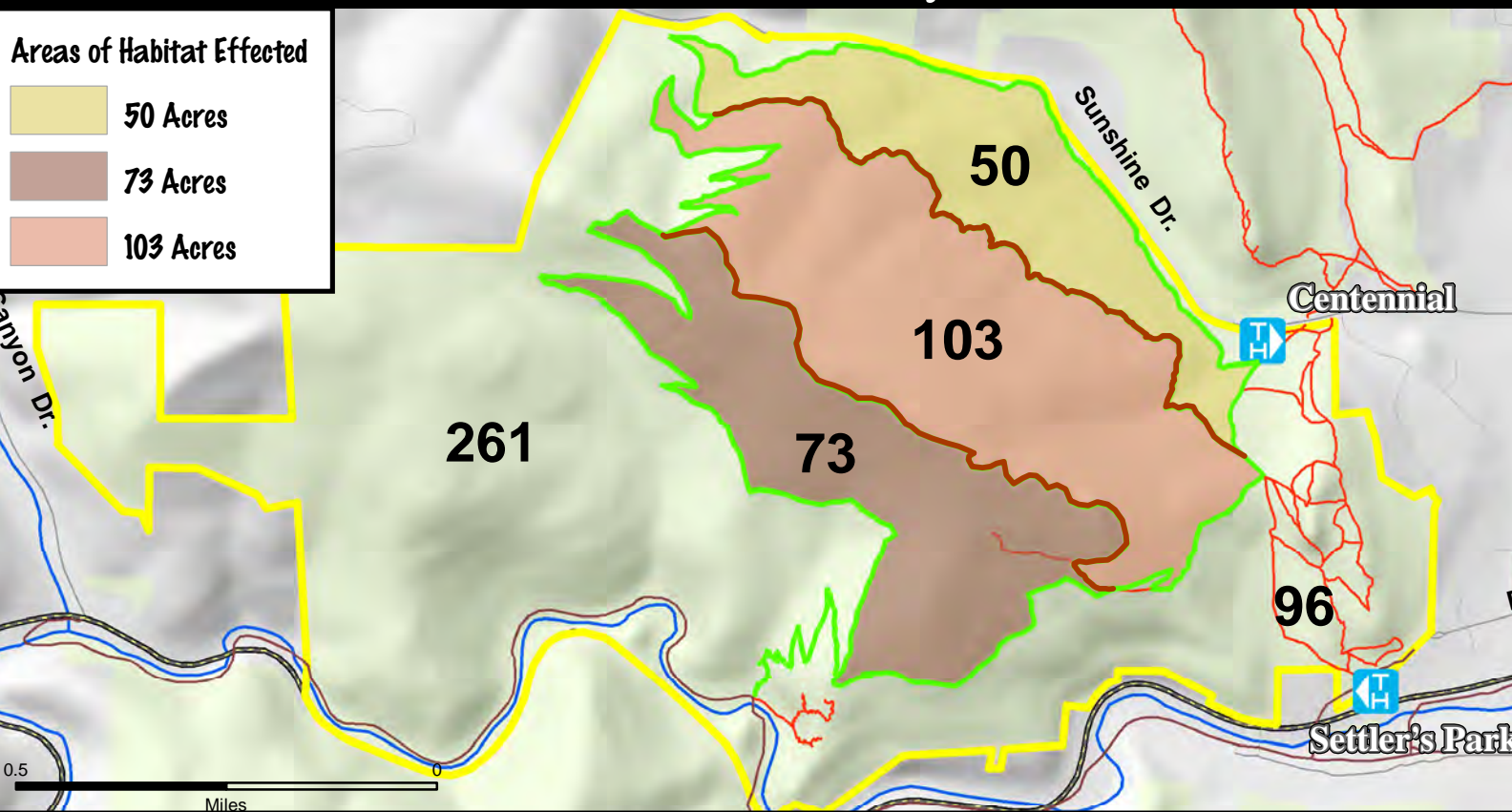
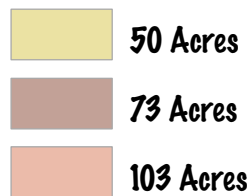
## Main Loop (Shared Use)

Areas of Habitat Effect



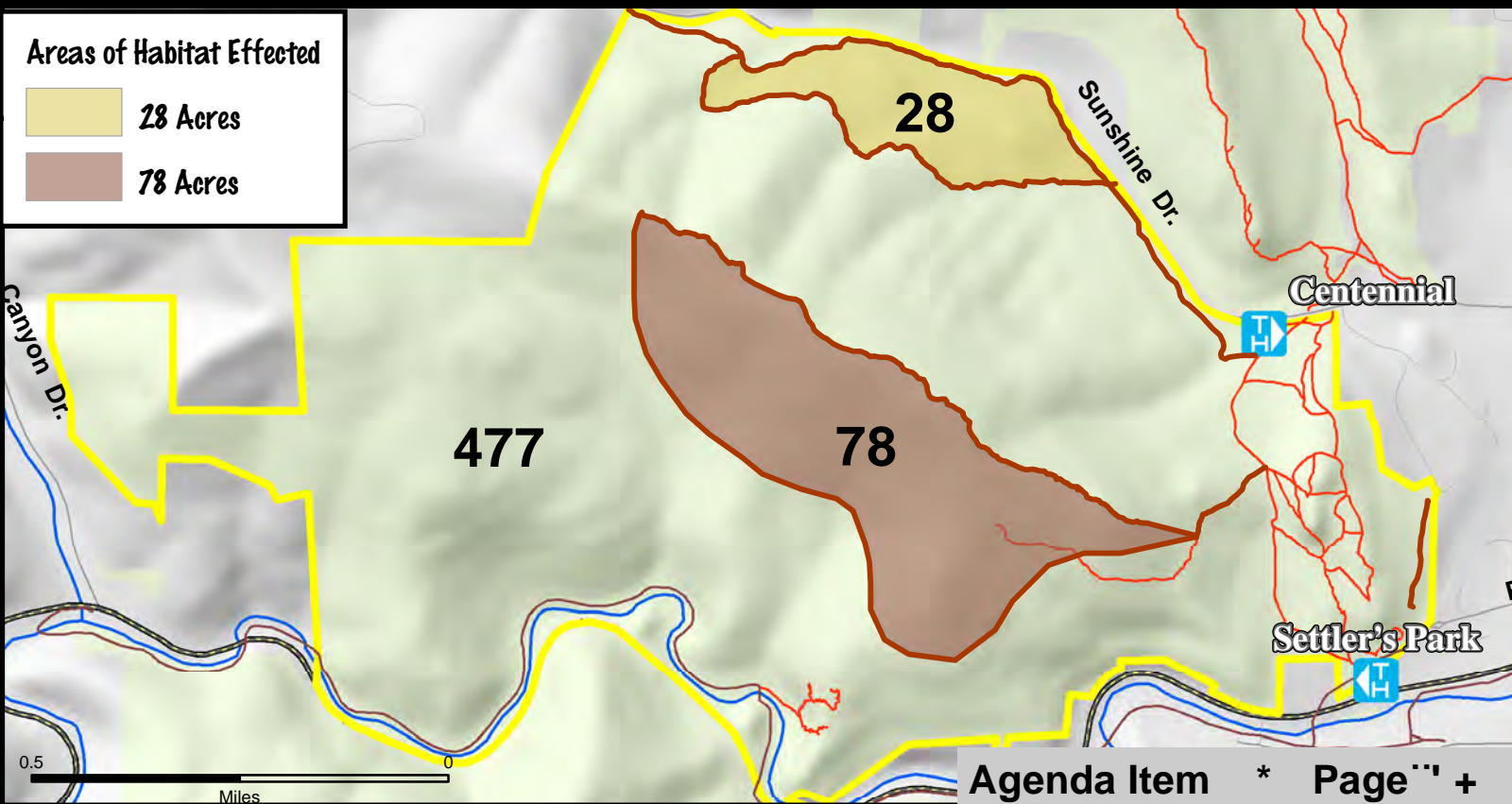
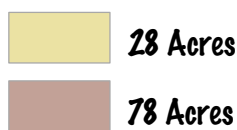
## Initial Trail Concept

Areas of Habitat Effect



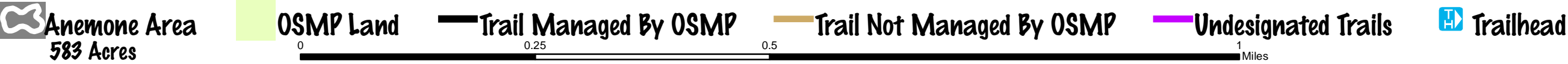
## WTSA Final Plan Recommendation

Areas of Habitat Effect

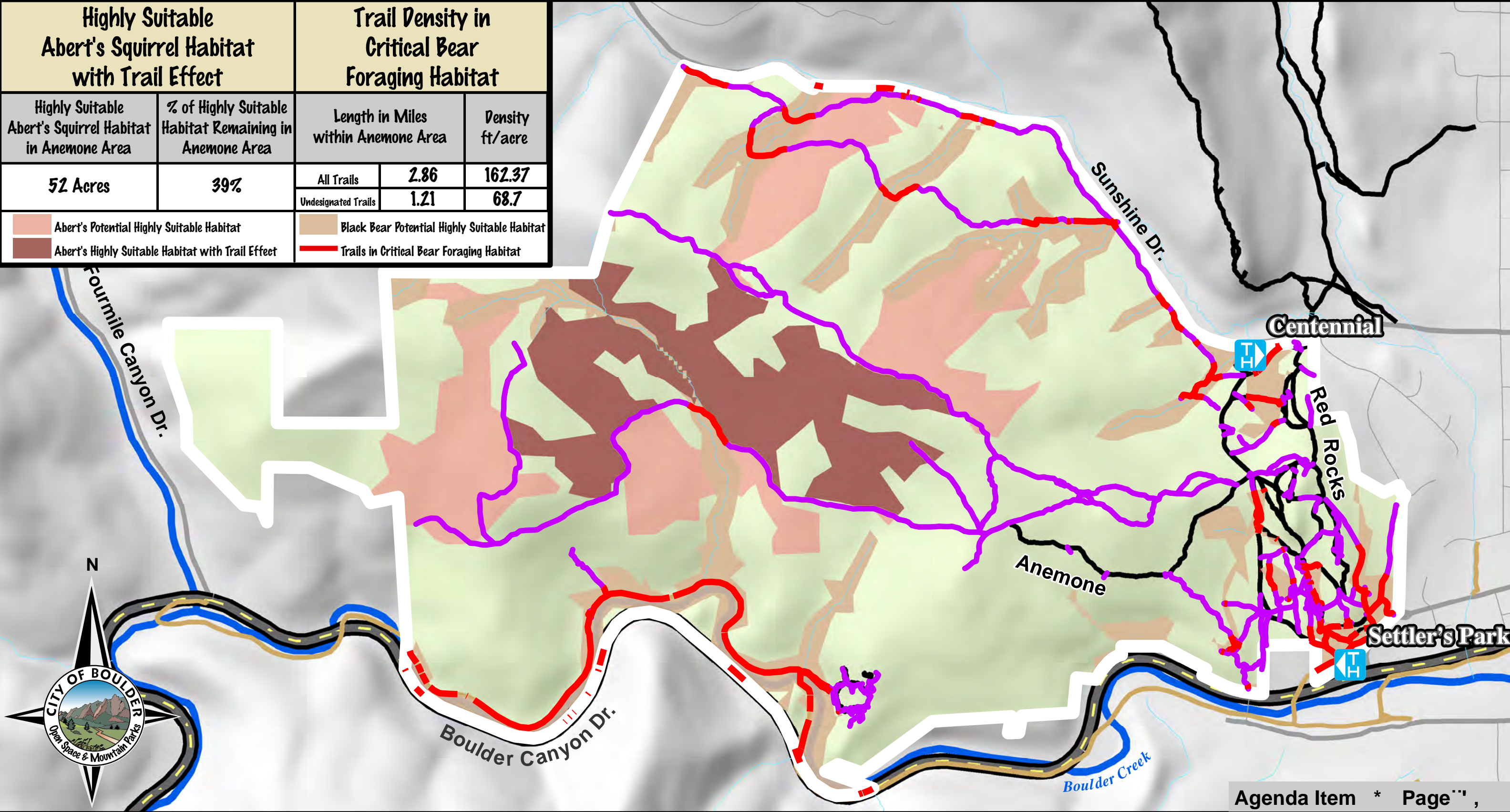




# Anemone Area - Abert's Squirrel and Black Bear Combined Habitat Suitability Inventory Analysis



Highly Suitable Abert's Squirrel Habitat with Trail Effect		Trail Density in Critical Bear Foraging Habitat		
Highly Suitable Abert's Squirrel Habitat in Anemone Area	% of Highly Suitable Habitat Remaining in Anemone Area	Length in Miles within Anemone Area		Density ft/acre
52 Acres	39%	All Trails	2.86	162.37
		Undesignated Trails	1.21	68.7
<div>Abert's Potential Highly Suitable Habitat</div> <div>Abert's Highly Suitable Habitat with Trail Effect</div>		<div>Black Bear Potential Highly Suitable Habitat</div> <div>Trails in Critical Bear Foraging Habitat</div>		





## Anemone Area

### West TSA Final Plan Trail Recommendations

(Trail Alignments are Conceptual)

- Construct
- - Designate
- - Re-route
- - Repair
- - Restore/Close
- - No Recommendation
- - Undesignated Trails



— Trails Not Managed By OSMP

Trailheads

Access Point

(No OSMP provided parking)

Conservation Easements

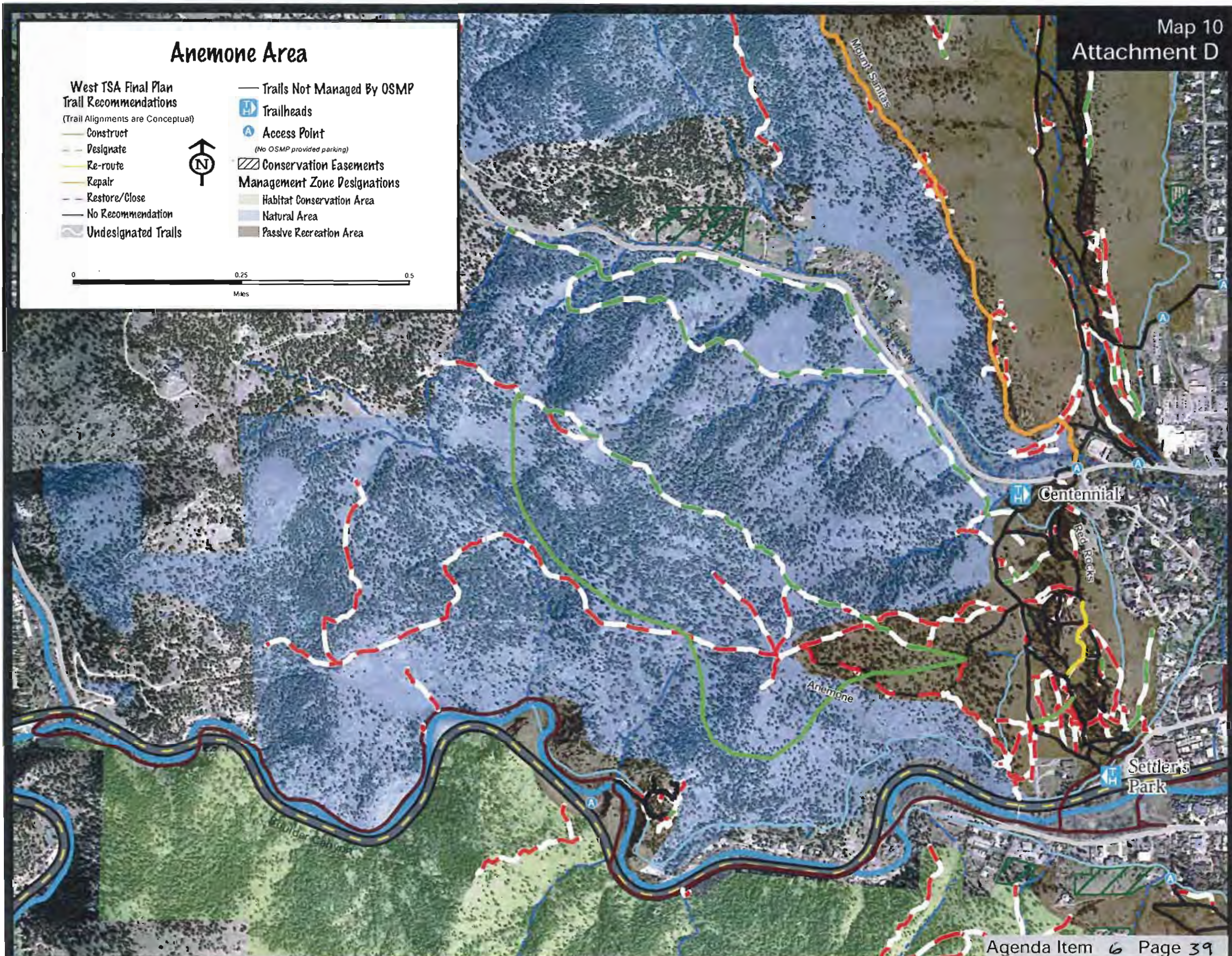
**Management Zone Designations**

Habitat Conservation Area

Natural Area

Passive Recreation Area

0 0.25 0.5  
Miles





# Anemone Area

## West TSA Final Plan

### Trail Recommendations

(Trail Alignments are Conceptual)

- Construct
- Designate
- Re-route
- Repair
- Restore/Close
- No Recommendation
- Undesignated Trails



Trails Not Managed By OSMP



Access Point

(No OSMP provided parking)

Conservation Easements

Management Zone Designations

Habitat Conservation Area

Natural Area

Passive Recreation Area

0 500 1,000

Feet

